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E-Learning in Global Education: Challenges and Prospects for Science And Physical Education In Nigeria.

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Abstract

Global Education is concerned with the extent global development issues are integrated into the curriculum, whether formal or non-formal. Currently the innovations in global education are centered on structural shifts in the content of the curriculum, application of ICT and scientific innovations in education, 'education for all' including the disadvantaged group among others. The wave of globalization emphasizes knowledge creation and transfer, critical thinking, problem solving and creativity. E-learning is at the centre of global education as it facilitates system consciousness, perspectives consciousness, preparedness and process mindedness, and involvement consciousness. Science and physical education in a developing country like Nigeria need that teaching and learning be electrically supported to face the challenges in out-of-classroom and in-classroom experiences. In the paper the place of e-learning in global education is x-rayed. The states of art in science education and physical education in Nigeria are examined. The challenges facing science education and physical education and the prospects thereof are highlighted.

Keywords: E-learning, Global Education, Science Education, Physical Education and globalization

1. Introduction

One of the emerging concepts in the multidimensional interactions characterized by the current world practices is global education. Global education is concerned with the extent global development issues are integrated into and within the curriculum. It enables the integration and infusion into curriculum of some important world issues, like education for sustainability, intercultural education, education for peace and conflict prevention among others.

Five indices of global education as summarized by Hicks (2003) include system consciousness, perspective consciousness, health of planet awareness, involvement consciousness and preparedness and process mindedness. In these indices the learner acquires the ability to think in a systems mode, develop receptivity to other perspectives, have an understanding of the concept of justice, human rights and responsibilities in relation to global conditions, be a participant in global democracy and see learning as a continuous process where an end forms the beginning of another.

The global education practices present learning as participatory decision-making process which fosters mutual knowledge and collective self-awareness. In this regard, education, knowledge and skill acquisition take the form of cooperative actions, collaborative reactions and dynamic multidimensional interaction that foster unity.

Global education looks at the ways in which everyday life and experiences are affected by the wider world. It stimulates curiosity, motivates learning and contributes to the raising of standards that enable people to take responsibility for their own lives and the world we live in and become active citizens.

The expansion in global education is empowered by e-leaning through the impetus of Information and Communication Technology (ICT) among others. What then is e-learning and what is the place of e-learning in global education.

2. The Place of E-learning in Global Education.

When teaching and learning in both in-classroom and out-of-classroom are electronically supported and facilitated, it is called e-learning. It is essentially technology based. It involves the use of computer and its devices to transfer and inculcate knowledge and skills.

E-learning applications and processes include web-based learning, computer-based learning, virtual classroom opportunities and digital collaboration. Lectures are delivered through internet, audio or video tapes, satellite TV, and CD-Rom (Tawangarian, Leypold, Nolting, & Roses, 2004). The development in internet and multimedia technologies are the basic enablers of e-learning.

In United States e-learning environments take place in a traditional classroom, others allow students to attend classes from home. There are several states that use cyber and virtual school in implementing e-learning.

Through the use of internet, information are passed across globe. Through the audio and visual technology teachers are assisted in lessen presentation in such a way that learning is facilitated. The communication technology provides a pathway for both teachers and learners to secure well-rounded and balanced education.

Through the communication technology, scholars share creative and innovative methods of research and other educational ideas. ICT in e-learning increases the interaction of professional, locally and internationally thus improving academic discourse in all education activities. In fact global education will be ineffective without e-learning empowered by information and communication technology.

3. State of Art in Science Education and Physical Education.

Science education is an integrated field of study which considers both the subject matter of science disciplines such as biology, chemistry, physics, agriculture etc as well as the processes involved in the learning and teaching of science. It implies exposing learners, usually prospective teachers of science to scientific and technological knowledge, to the nature of science, scientific processes, and attitude as well as equipping them with professional skills of a science teacher. (Okeke, 2007). Consequently one cannot possibility discuss science education without talking about science teachers.

The teacher is an important factor in any educative process. Hence in Nigerian National Policy on Education, it is stated that no educational system can rise above the quality of its teachers, (Federal Republic of Nigeria, 2004). So the quality of science teachers as a critical factor in students science achievement is central.

The teacher preparation institutions in Nigeria have not made deliberate efforts to produce teachers that are ICT complaint and teachers usually teach the way they are taught. This problem is more serious in science and technology education that emphasize knowledge creation, inculcation of critical thinking, problem solving, and innovative abilities.

Many teachers still use traditional methods to teach science. Science is still taught in single discipline approach not in integrated form. Kologa (2009) observed that chalkboard and textbooks have continued to dominate classroom activities in most schools and institutions in Nigeria.

Physical education is a course or school subject that encourages psychomotor learning in a play or movement exploration setting. Barrow in Wikipedia, (2011) defined Physical Education as an education of and through human movement where many of educational objectives are achieved by means of big muscles activities involving sports, games, gymnastic, dance and exercise.

Physical education in recent time have incorporated a greater variety of activities. There are introduction of students to lifetime activities like bowling, walking/honking or Frisbee, stress-reduction techniques such as yoga and deep-breathing. Teaching non-traditional (in non-native) sports provides a great opportunity to integrate academic concepts from other subjects as well. The objectives of physical education includes physical, mental, social and emotional wellbeing of the participants (Wikipedia, 2011).

Efforts are still being made to enhance the impact of physical education teachers to achieving these objectives through the medium of e-learning in modern times. Hitherto, science and physical education teachers at all levels in Nigerian education system had relied extensively on the traditional method of impacting knowledge. Admittedly, the scientific understanding of science and physical education has increased dramatically in recent times than so many decades ago. What is uppermost in the minds of present day science and physical education teachers is ICT compliance. Using information technological devices such as computers, CD-Rom, TV, Digital camera, internet etc can indeed improve teaching and learning of science and physical education. Hughes,

Franks & Nagelkerke (1990) advocated the use and integration of recent advances in ICT to bring about the desired objective feedback which is vital in teaching and learning processes.

Through electronic learning, experience have been brought to the doorsteps of teachers and learners. Uwa and Agbanusi (2005) and Umeasigbu (2007) have listed the following as some of the available information technology tools that can be integrated in the teaching/learning in physical education:

- systematized feedback or video feedback,
- computer based operation network,
- computer discs with read only memory,
- camcorders and digital cameras
- video conferencing

These ICT devices can be used in a variety of ways to the roles of teaching and learning in science and physical education.

In global education references are still made to impact of teachers in achieving desired and desirable changes.

- Teachers should still act as facilitators but in such a way as to help students link local issues to international happenings and develop global attitudes to knowledge,
- Teachers should provide course materials and referrals that will create hunger for knowledge and skills in the students to crave for global education,
- They should present materials in such a way that students develop critical thinking, verify facts, seek for evidence and ask higher order questions.
- Teachers should create conditions that will make learners see relationships between subjects, courses and discipline.

According to Global Education Leaders Programme (2011), the pedagogic style critical in global education are:

- putting the learner at the centre and increasing personalization,
- teachers drawing from ranges of strategies and skills,
- introduction and increased use of project work to develop skills and interdisciplinary working,
- integrating real-life experience into the classroom and increasing authenticity of the taught material.

Teachers that are ill prepared or were not given training in these activities may find it difficult to practicalize activities in global education as it is the case of some science and physical education teachers in Nigeria.

4. Challenges

Nigeria as a country has made a number of reforms in education generally and also in science and technology education. In spite of these educational reform effort, Nigeria has continued to face many serious educational problems that have obstructed progress in educational innovations and excellence. Science education requires a lot of activities on the side of the students as well as the teachers. A combined effect is required on the part of both students and teachers to enable students acquire scientific literacy, science process skill and ethics of science.

These characteristics when possessed by the graduates of science education programme will be a bedrock for the quality and quantity of food production in the country. Observably food production is one of the challenges facing the nation. These qualities should also be reflected on the country's means of transportation which should be safe and efficient. The state of our roads, rail network and aviation system in the country remain a challenge. The science education is challenged to provide the manpower to run the industrial base of the nation. This is one of the areas where the nation is retrogressing and compounding the employment problem in the country.

Physical education is also activity based. There must be facilities for the efforts of the students and teachers to yield the desired results. Therefore the provision of adequate infrastructure is a challenge which Nigeria has to sub-mantle. The ever economic crunch in Nigeria coupled with high purchase cost of most electronic teaching devices have become a cog in the wheel of progress. Many schools, colleges and even universities can not and have not made conscious effort to purchase ICT devices due to shortage of funds.

As stated before many science and physical education professionals are not ICT compliant whereas the few that have the knowledge and laptop computers, don't even have assisted internet connectivity in their offices, laboratories and classrooms for effective research and teaching. One of the challenges of science and physical education therefore is availability of right caliber of teachers who are ICT complaint, and who can re-curriculate the programme to make global education work.

Science education is faced with the reality of providing the requisite leadership in ICT via e-learning and global education at all levels of education system. Science education should demonstrate the use of computer in data processing and decision making. It should revolutionized the overall technological output through the system handling and operations of computer for speed, accuracy and efficiency. Science education is therefore challenged with the responsibility of bridging the digital gaps among the citizenry.

Also another challenge is how to establish reliable cost effective internet connectivity. According to Kolojo (2009) 0.6% of the Nigeria populace have home personal computers, the few reliable internet providers who have invested huge sum of money in the business have a very small clientele. They have to charge high fee in order to recoup their investment in reasonable time. Equally worrisome is the fact that teaching and use of ICT has not assumed serious dimensions in many Nigerian schools and colleges.

Another big challenge to science education and physical education as far as global education and e-learning is concerned is the provision of uninterrupted electricity power supply. The effort of the government to achieve uninterrupted power supply has been elusive. Nigeria has also depended on expatriate in energy generation. A comprehensive energy policy is needed in the country. The policy should include a national energy audit that takes into account energy conservation as well as the exploitation of renewable energy resources like solar and wind.

As long as the supply of electricity is in epileptic form not much could be achieved in e-learning and global education.

5. Prospects

Nigeria as a country still has opportunities to improve in the areas of global education and e-learning. The improvement has to start with innovations in science education and other science based courses. It will require attitudinal changes and discipline without which many breakthroughs in the world would not have been possible. Some of the prospects are as articulated below.

Development and implementation of curricula that emphasize scientific reasoning, inquiry-based learning and current scientific discovery and understanding of the physical world.

In teaching science and physical education, participatory strategies and methods should be used so that students learn by taking responsibilities that cannot be left only to teachers, school authorities, government, and other decision makers.

Preparing and nurturing well-educated teachers by recruiting, retaining through reward and valuing good science teachers. These teachers should be offered lifelong professional developments opportunities to improve their content area and pedagogical skills.

Government should collaborate with the private sector and civil societies to provide affordable and sustainable access to ICT.

As a matter of necessity, institutions of higher learning should have internet connections in the offices, laboratories and classrooms.

Government should intensify effort to provide uninterrupted power supply as it is now in some other African countries.

Funding of schools and institutions of higher learning should be adequate. This will help to provide the much needed infrastructure and resources to support classroom teaching and laboratory instructions.

Refresher courses and seminars should be organized for teachers to enable them upgrade themselves in ICT.

Information communication technology should of necessity be build into curriculum in every subject and course.

Relating the industrial output with the laboratory concepts and practice for adoptability in global labour market.

6. Conclusion

Global education is what any nation cannot afford to denial its citizens. E-learning makes it possible for both young and old to benefit from global education. Scientific literacy and attitudes are needed for emancipation in science and physical education. Global education will foster these attributes if empowered through e-learning. The present practice where sports have created cordiality between and among nations, physical education needs to be given a boast both in, out-of-classroom and in-classroom activities. ICT friendly physical education environment will serve as a catalyst to this dream.

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